

REMARKS

In the Office Action, the Examiner rejected claims 1-9, and 11-14 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,072,156 (Abe). Claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,072,156 (Abe) in view of U.S. Patent No. 4,230,135 (Ueda). Claims 15 and 16 were rejected under 35 U.S.C 103(a) as being unpatentable over U.S. Patent No. 4,072,156 (Abe) in view of U.S. Patent No. 4,178,502 (Zimmermann). Finally, claims 17 and 18 were rejected under 35 U.S.C 103(a) as being unpatentable over U.S. Patent No. 4,072,156 (Abe) in view of U.S. Patent No. 3,818,918 (Nissmo et al).

U.S. Patent No. 4,072,156 (Abe) discloses a coin selecting machine, wherein the coins are driven along a plane 37 by a propelling belt 8 which presses them against said plane, so that the coins can be pushed down into the sorting paths where appropriately sized holes 16 are present in the plane 37. The propelling belt 8 is kept in the correct position facing the plane 37 by means of a plurality of rollers 19 supported by respective cantilever arms 20. A resilient force directed towards the plane 37 is imparted to the coins by the elastic deformation the belt 8 undergoes when a coin is present in the space between the belt and plane 37.

The Examiner acknowledged that the solution according to Abe is different from that claimed in the instant application because the rollers or pulleys 19 of Abe are not supported by resilient arms or pins which could reposition the pulleys in order to force the coins through the sorting holes, but the Examiner asserted that using pulleys supported by a resilient arm instead of rigid pulleys guiding a resilient belt is obvious to one of ordinary skill in the art wishing to provide effective means of forcing coins through the sorting holes.

It should firstly be noted that the problem to be solved in such kind of machines is not only how to impart a generic thrust to the coins towards the sliding plane, but also how to effectively ensure the coins actually dropping into the holes and to avoid any significant wear of the parts.

In the solution according to Abe a tubular belt is used, which is made of soft and high elastic material because it must undergo a radial elastic deformation when a pressure is applied to its outer peripheral surface due to the presence of a coin in the space between the belt 8 and the plane 37 (see column 4, lines 23-29, column 6, lines 3-10 and Fig. 4). The thrust forcing the coins to drop into the sorting holes is provided by the elastic restoring force exerted by the belt 8 as a result of its previous radial deflection (column 6, lines 6-8 and 50-55).

In the embodiment of Abe two drawbacks can be seen, to which the structure according to the claimed invention gives a satisfactory solution.

The first drawback is the tendency of the belt to lose its elastic properties and to acquire a permanent deformation, thereby worsening its behavior, due to the continuous alternation of compressions and expansions the belt undergoes every time each of its portions resting on the coins passes from the positions below the rigid pulleys, where these latter compel the belt to run at a predetermined distance from the plane 37 even when a coin is present between the belt and the sliding plane, to the positions intermediate between the pulleys, where the belt can temporarily increase its distance from the plane 37 because of the coin thickness urging the belt away from the plane 37. It is apparent that this tendency of a soft and highly resilient belt to lose its elastic properties and to acquire a permanent deformation, which is per se well acknowledged by Abe (column 7, lines 37-38), results in a significant shortening of the operative life of the propelling belt.

According to the claimed invention, a plurality of pulleys 37 is used, which are elastically supported by their pins to be enabled to perform an elastic movement such that, when no coin passes between the belt 33 and the flow plane 16, the pulley has its rotation axis at a first distance from said plane, and when a coin passes between the belt and the flow plane the axis is pushed against an elastic force to a second, greater distance from the plane. Thanks to this arrangement, the elastic reaction is not entrusted to the propelling belt, but to a number of belt supporting elements which can move back to increase the space available between the belt and the flow plane when a coin passes below them. Since the resilient action in the direction perpendicular to the flow plane is governed by the pulleys, the propelling belt is not required to have a significant radial deformation in its cross section and, accordingly, a more rigid and resilient propelling belt than in Abe can be used (having for example a full cross section), thereby extending the operative life of the belt itself.

The second drawback involved by the structure according to Abe derives by the fact that, since the rigid pulleys lie at a fixed, predetermined distance from the sliding plane 37, the axis of the propelling belt 8 below the pulleys also is at a fixed distance from the plane 37. Therefore, when a coin passes over a sorting hole, it merely undergoes a thrust towards the plane 37 which corresponds to the elastic deformation the thickness of the coin has induced in the resilient material of the belt and this thrust ceases as soon as the belt cross section recovers its non-deformed shape.

Conversely, the elastic support of the pulleys 37 in the arrangement according to the claimed invention enables the pulleys (and, together with them, also the propelling belt resting thereon) to launch a “pendulum” effect when a coin passes over a sorting hole, which “pendulum” effect pushes the coin beyond the rest position the belt would have if no coin were present. This additional transversal stroke of the propelling belt towards the sorting hole (which cannot be obtained by the resilient belt and rigid pulleys of

Abe) accompanies the coin into the sorting hole, thereby avoiding any possible rebounds of the coin against the edges of the sliding path and any consequent disturbances that could affect the following coins.

The features recited in amended claim 1 are not anticipated by Abe and, since they actually produce a different effect onto the coins with respect to Abe, they cannot be considered either derivable from said prior art reference without any inventive effort, or a mere design possibility for a person skilled in the art in view of the problem to be solved.

Moreover, an Information Disclosure Statement is enclosed with a copy of the European Search Report which was issued on December 5, 2005 in connection with the corresponding European Patent Application No. 04004640.1 filed on March 1, 2004 as well as a copy of the cited references. Enclosed is also an English translation of the abstract of the reference ES 2 028 624 published in the Spanish language.

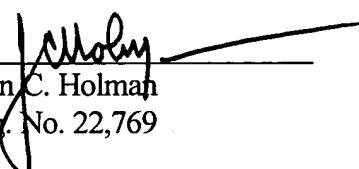
Based on the foregoing amendments and remarks, it is respectfully submitted that the claims in the present application, as they now stand, patentably distinguish over the references cited and applied by the Examiner and are, therefore, in condition for allowance. A Notice of Allowance is in order, and such favorable action and reconsideration are respectfully requested.

However, if after reviewing the above amendments and remarks, the Examiner has any questions or comments, he is cordially invited to contact the undersigned attorneys.

Respectfully submitted,

JACOBSON HOLMAN, PLLC

By:


John C. Holman
Reg. No. 22,769

400 Seventh Street, N.W.
Washington, D.C. 20004-2201
(202) 638-6666
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JLS/arc